8/8/07

Curriculum Vita

W. James Steenburgh

Professor and Chair
Department of Meteorology
University of Utah
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Research Interests

Mountain weather and climate, orographic and lake-effect precipitation, urban and arid-land meteorology, weather analysis and forecasting

Professional Experience

2005 – present	Chair, Dept. of Meteorology, University of Utah
2001 – present	Associate Professor, Dept. of Meteorology, University of Utah
2002	Visiting Professor, University at Albany, State University of New York
2002	Head, Mesoscale Modeling Group, 2002 Olympic Winter Games
1995 – 2001	Assistant Professor, Dept. of Meteorology, University of Utah
1995	Research Associate, Dept. of Atmospheric Sciences, University of Washington
1989 – 1995	Research Assistant, Dept. of Atmospheric Sciences, University of Washington
1988	Intern Meteorologist, National Weather Service, Albany, NY

Education

1995	Ph. D.	Atmospheric Sciences, University of Washington Doctoral Thesis: "An Investigation of the Interaction of Extratropical Cyclones with the Complex Terrain of Western North America," C. F. Mass, advisor.
1989	B.S.	Meteorology, The Pennsylvania State University, with high distinction

Peer-Reviewed Publications

Shafer, J. C., and W. J. Steenburgh, 2007: Climatology of strong Intermountain cold fronts. *Mon. Wea. Rev*., in review.

Cheng, W. Y. Y., and W. J. Steenburgh, 2007: Strengths and weaknesses of MOS, running-mean bias removal, and Kalman filter techniques for improving model forecasts over the western U. S. *Wea. Forecasting*, in press.

Orf, L., G. Lackman, C. Herbster, A. Krueger, E. Cutrim, T. Whitaker, J. Steenburgh, and M. Voss, 2007: Models as educational tools. *Bull. Amer. Meteor. Soc*., **88**, 1101-1104.

West, G. L., W. J. Steenburgh, and W. Y.-Y. Cheng, 2007: Spurious grid-scale precipitation in the North American Regional Reanalysis. *Mon. Wea. Rev*., **135**, 2168-2184.

Shafer, J. C., W. J. Steenburgh, J. A. W. Cox, and J. P. Monteverdi, 2006: Terrain influences on synoptic storm structure and mesoscale precipitation distribution during IPEX IOP3. *Mon. Wea. Rev*., **134**, 478-497.

Cheng, W. Y. Y., and W. J. Steenburgh, 2005: Evaluation of surface sensible weather forecasts by the WRF and Eta models over the western United States. *Wea. Forecasting*, **20**, 812-821.

Colle, B. A., J. B. Wolfe, W. J. Steenburgh, D. E. Kingsmill, J. A. W. Cox, and J. C. Shafer, 2005: High resolution simulations and microphysical validation of an orographic precipitation event over the Wasatch Mountains during IPEX IOP3. *Mon. Wea. Rev*., **133**, 2947-2971.

Hart, K. A., W. J. Steenburgh, and D. J. Onton, 2005: Model forecast improvements with decreased horizontal grid spacing over fine-scale Intermountain orography during the 2002 Olympic Winter Games. *Wea. Forecasting*, **20**, 558-576.

Cox, J. A. W., W. J. Steenburgh, D. E. Kingsmill, J. C. Shafer, B. A. Colle, O. Bousquet, B. F. Smull, and H. Cai, 2005: The kinematic structure of a Wasatch Mountain winter storm during IPEX IOP3. *Mon. Wea. Rev*., **133**, 521-542.

Pataki, D. E., B. J. Tyler, R. E. Peterson, A. P. Nair, W. J. Steenburgh, and E. R. Pardyjak, 2005: Can carbon dioxide be used as a tracer of urban atmospheric transport? *J. Geophys. Res*., **110**, D15, D15102.

Steenburgh, W. J., 2004: One hundred inches in one hundred hours – the complex evolution of an Intermountain winter storm cycle. *Bull. Amer. Meteor. Soc*., **85**, 16-20.

Steenburgh, J., and E. Greene, 2004: Intermountain winter storm evolution during a 100-inch storm cycle. *The Avalanche Review*, **22(4)**, 13-16.

Hart, K. A., W. J. Steenburgh, D. J. Onton, and A. J. Siffert, 2004: An evaluation of mesoscale-model based model output statistics (MOS) during the 2002 Olympic and Paralympic Winter Games. *Wea. Forecasting*, **19**, 200-218.

Steenburgh, W. J., 2003: One hundred inches in one hundred hours – evolution of a Wasatch Mountain winter storm cycle. *Wea. Forecasting*, **18**, 1018-1036.

Steenburgh, W. J., 2002: Using real-time mesoscale modeling in undergraduate education. *Bull. Amer. Meteor. Soc*., **83**, 1447-1451.

Horel, J., T. Potter, L. Dunn, W. J. Steenburgh, M. Eubank, M. Splitt, and D. J. Onton, 2002: Weather support for the 2002 Winter Olympic and Paralympic Games. *Bull. Amer. Meteor. Soc*., **83**, 227-240.

Schultz, D. M., W. J. Steenburgh, R. J. Trapp, J. Horel, D. E. Kingsmill, L. B. Dunn, W. D. Rust, L. Cheng, A. Bansemer, J. Cox, J. Daugherty, D. P. Jorgensen, J. Meitin, L. Showell, B. F. Smull, K. Tarp, and M. Trainor, 2002: Understanding Utah Winter Storms: The Intermountain Precipitation Experiment. *Bull. Amer. Meteor. Soc*., **83**, 189-210.

Stewart, J. Q., C. D. Whiteman, W. J. Steenburgh, and X. Bian, 2002: A climatological study of thermally driven wind systems of the U. S. Intermountain West. *Bull. Amer. Meteor. Soc*., **83**, 699-708.

Steenburgh, W. J., and T. R. Blazek, 2001: Topographic distortion of a cold front over the Snake River Plain and central Idaho Mountains. *Wea. Forecasting*, **16**, 301-314.

Steenburgh, W. J., and D. J. Onton, 2001: Multiscale analysis of the 7 December 1998 Great Salt Lake-effect snowstorm. *Mon. Wea. Rev*., **129**, 1296-1317.

Onton, D. J., and W. J. Steenburgh, 2001: Diagnostic and sensitivity studies of the 7 December 1998 Great Salt Lake-effect snowstorm. *Mon. Wea. Rev*. **129**, 1318-1338.

Steenburgh, W. J., S. F. Halvorson, and D. J. Onton, 2000: Climatology of lake-effect snowstorms of the Great Salt Lake. *Mon. Wea. Rev.,* **128**, 709-727.

Mass, C. F., and W. J. Steenburgh, 2000: An observational and numerical study of an orographically trapped wind reversal along the west coast of the U.S. *Mon. Wea. Rev.,* **128**, 2363-2396.

Schultz, D. M., and W. J. Steenburgh, 1999: The formation of a forward-tilting cold front with multiple cloud bands during Superstorm 1993. *Mon. Wea. Rev*., **127**, 1108-1124.

White, B. G., J. Paegle, W. J. Steenburgh, J. D. Horel, R. T. Swanson, L. K. Cook, D. J. Onton, and J. G. Miles, 1999: Short-term forecast validation of six models. *Wea. Forecasting*, **14**, 84-108.

Steenburgh, W. J., D. M. Schultz, and B. A. Colle, 1998: The structure and evolution of gap outflow over the Gulf of Tehuantepec, Mexico. *Mon. Wea. Rev*., **126**, 2673-2691.

Steenburgh, W. J., C. F. Mass, and S. A. Ferguson, 1997: The influence of terrain-induced circulations on wintertime temperature and snow level in the Washington Cascades. *Wea. Forecasting*, **12**, 208-227.

Steenburgh, W. J., and C. F. Mass, 1996: Interaction of an intense extratropical cyclone with the coastal orography of western North America. *Mon. Wea. Rev.*, **124**, 1329-1352.

Steenburgh, W. J., and C. F. Mass, 1994: The structure and evolution of a simulated Rocky Mountain lee trough. *Mon. Wea. Rev*., **122**, 2740-2761.

Steenburgh, W. J., and J. R. Holton, 1993: On the interpretation of geopotential height tendency equations. *Mon. Wea. Rev*., **121**, 2642-2645.

Mass, C. F., W. J. Steenburgh, and D. M. Schultz, 1991: Diurnal surface pressure variations over the continental U.S. and the influence of sea level reduction. *Mon. Wea. Rev*., **119**, 2814-2830.

E-Publications

Steenburgh, W. J., 2004: Dynamics and microphysics of cool-season orographic storms. COMET Meteorological Education & Training (MetEd) Program Webcast. http://deved.meted.ucar.edu/norlat/orographic/index.htm.

Technical Reports

SHARE: Sierra Hydrometeorology and Atmospheric River Experiment Master Planning Document. SHARE Scientific Steering Committee. D. Kingsmill and S. Yuter, co-chairs.

Steenburgh, W. J., and D. J. Onton, 2001: Meteorological modeling for the 2002 particulate matter (PM10) State Implementation Plan for Salt Lake and Utah Counties. Report to the Utah Department of Environmental Quality, Division of Air Quality, 21 pp.

Steenburgh, W. J., 1998: Weather support at the 1998 Nagano Winter Olympics: Summary and Recommendations. Report to the Salt Lake Organizing Committee for the Olympic Winter Games of 2002.

MAP: Mesoscale Alpine Programme U. S. Overview Document 1996, National Science Foundation Field Program Proposal. R. Houze, J. Kuettner, and R. Smith, eds.

Steenburgh, W. J., and C. F. Mass, 1996: Synoptic and mesoscale circulations during high ozone episodes over western Washington: An evaluation of the Penn State/NCAR Mesoscale Model (MM5). Report to the Puget Sound Air Pollution Control Agency, 67 pp.

Steenburgh, W. J., and C. F. Mass, 1996: Numerical Simulations of the PM-10 Episode of 3-4 January 1995. Report to the Puget Sound Air Pollution Control Agency, 28 pp.

Research and Educational Funding

Current

Mechanisms of Intermountain Cold Front Evolution (PI), National Science Foundation, **$387.5K**, 1/07-12/09.

Structure and Evolution of Intermountain Cyclones (PI), National Science Foundation, **$344.3K**, 1/04-12/07.

Past

NOAA Cooperative Institute for Regional Prediction: 2004-2007 (co-PI), NOAA, **$375.0K**, 7/04-6/07.

Evaluation of NCEP Regional Reanalyses over Complex Terrain (co-PI), NOAA, **$220.0K**, 7/04-6/07.

Improving the Gridded Forecast Process Using Statistically Post-Processed Model Guidance Based on High-Density Mesonet Observations (PI), University Corporation for Atmospheric Research/COMET**, $81.0K**, 6/04-11/06.

Orographic Precipitation Processes over the Wasatch Mountains during IPEX (PI), National Science Foundation**, $231.5K**, 1/01-12/03.

Cooperative Institute for Regional Prediction Contribution to CSTAR (co-PI), NOAA, **$375.0K**, 1/01-12/03.

Planning Weather Support for the 2002 Winter Olympics (co-PI), NOAA**, $588.7K**, 4/01-3/02.

Regional Coupled Atmospheric/Land–Surface Modeling for GAPP (PI), University of Utah Seed Grant Committee, **$30.7K**, 3/02-2/03.

Cooperative Institute for Regional Prediction: 2000 (co-PI), NOAA, **$125.0K**, 1/00-12/00.

Planning Weather Support for the 2002 Winter Olympics (co-PI), NOAA, **$216.0K**, 1/99-12/ 99.

Collaboration for Improved Meteorological Modeling (PI), Utah Division of Air Quality, **$56.7K**. 10/99-9/01.

Planning Weather Support for the 2002 Winter Olympics (co-PI), NOAA, **$97.0K**, 6/98-6/99.

Development of a Meteorological Computation and Visualization Laboratory: A Unidata Equipment Proposal (PI), National Science Foundation, **$19.4K**, 9/97-9/98.

Mesoscale Modeling Studies of Warm Season Rainfall in the PACS Domain (co-PI), NOAA-OGP, **$171.7K**, 3/98-2/00.

Observational and Numerical Investigations of the Interaction of Synoptic Weather Systems with the Orography of the Western United States (PI), National Science Foundation, **$206.5K**, 2/97-1/00.

Workshop on Weather Prediction in the Intermountain West (PI), University Corporation for Atmospheric Research//COMET, **$3.8K**, 4/ 98-3/99.

Real-Time Numerical Weather Prediction for the Wasatch Front and Adjoining Region (PI), University of Utah Research Committee, **$5.8K**, 2/96-2/98.

Field Program Participation

IMPROVE (2001)	Lead forecaster
IPEX (2000)	Co-lead scientist, mission coordinator, lead forecaster
VTMX (2000)	Lead forecaster
COAST (1993)	Airborne scientist, field-phase forecasting and planning

Teaching

I regularly teach a year-long sequence in synoptic meteorology covering synoptic-dynamic meteorology, extratropical cyclones and fronts, and weather analysis and forecasting. I have also co-developed an advanced course in Mountain Meteorology (Meteo 5550/6550) in collaboration with Dr. John Horel. In 2001 I received the *College of Mines and Earth Sciences Outstanding Teaching Award.* I also served as the Department Undergraduate Advisor from 1996-2005.

Synoptic Meteorology I (Meteo 5530/6530)
Synoptic Meteorology II (Meteo 5540/6540)
Mountain Meteorology (Meteo 5550/6540)
Mountain Weather and Climate (ATM 619, University at Albany, Fall 2002)
Fundamental Applications of Dynamic Meteorology (Meteo 551, quarter system)
Weather Discussion (Meteo 5580/6580)
Undergraduate Seminar (Meteo 2810)
Graduate Seminar (Meteo 7810)
Undergraduate Advisor (1996-2005)

Student Mentoring

<u>Doctoral Students Supervised</u>

Cox, J. A. W., 2006: The Sensitivity of thermally driven mountain flows to land-cover change. Present Employment: Research Meteorologist, AIR Worldwide, Boston, MA.

Shafer, J. C., 2005: Topographic and diabatic influences on baroclinic storm evolution over the Intermountain West. Present employment: Assistant Professor, Lyndon State College, VT.

Hart, K. A., 2004: An evaluation of high-resolution modeling and statistical forecast techniques over complex terrain. Present employment: Professor, U.S. Air Force Academy and Lt. Col., U.S. Air Force, Colorado Springs, CO.

Onton, D. J., 2000: An observational and numerical modeling investigation of Great Salt Lake-effect snow. Present employment: Meteorologist, National Weather Service.

<u>Masters Students Supervised</u>

West, G. L., 2005: Spurious grid-scale convection in the North American Regional Reanalysis (NARR). Present employment: Ph. D. student, University of Utah

Shafer, J. C., 2002: Synoptic and mesoscale structure of a Wasatch Mountain winter storm. Present employment: Assistant Professor, Lyndon State College, VT.

Cox, J. A. W., 2002: Kinematic structure of a Wasatch Mountain Snowstorm. Research Meteorologist, AIR Worldwide, Boston, MA.

Grandy, R. J., 2001: Case studies of ozone transport processes along the Wasatch Front. Present employment: Permit Engineer, State of Utah Division of Air Quality, UT.

Siffert, A. J., 2001: Point-specific MOS forecasts for the 2002 Winter Games. Present employment: Meteorologist, ACE-INA, Philadelphia, PA.

Blazek, T. R., 2000: Analysis of a Great Basin cyclone and attendant mesoscale features. Present employment: Major, U. S. Air Force, Offut AFB, NE.

Halvorson, S. F., 1999: Climatology of lake-effect snowstorms of the Great Salt Lake. Present employment: Meteorologist, U. S. Army Dugway Proving Grounds, UT.

Cook, L. K., 1998: An evaluation of mesoscale model performance over the western United States. Present employment: Meteorologist, National Weather Service, Salt Lake City, UT.

Current Research Assistants

Greg West, Ph. D.
Colby Neuman, M. S.

Graduate Committees

Erik Crosman, Ph.D. (enrolled)
Phoebe McNeally, Ph.D., Dept. of Geography (enrolled)
Scott Hynek, Ph. D., Dept. of Geology and Geophysics (enrolled)
Luis Blacutt, M.S. 2006
David Myrick, Ph.D. 2006
Mario Majcen, M.S. 2005
Eric Crosman, M.S. 2005
Eric Stone, M.S. 2004
Dan Zumpfe, M.S. 2004
Jennifer Roman, Ph.D. 2004
Robert Rice, Ph.D., Dept. of Civil Engineering, 2003
Linda Cheng, M.S. 2001
Gonzalo Miguez-Macho, Ph.D. 2000
Robert Swanson, Ph.D. 1998
Jonathan Slemmer, M.S. 1998
Brett McDonald, Ph.D. 1998
Bryan White, M.S. 1997
Christopher Stiff, M.S. 1997
Mark Braby, MS 1997

Current and Past Undergraduate Research Assistants

Eric Grimit
Jebb Stewart
Dave Strohm

Matt Maserik
Todd Foisy
Christine McCue
Marissa Orgill
Colby Neuman

Invited Lectures and Seminars

Steenburgh, W. J., 2006: *Everything you wanted to know about the Great Salt Lake effect but were afraid to ask*, Utah State University.

Steenburgh, W. J., 2005: *Improved performance measures for NWS gridded forecasts*, NWS-WR SOO/DOH Workshop.

Steenburgh, W. J., 2004: *Using the MesoWest cooperative networks for environmental analysis and prediction*, NOAA National Severe Storms Laboratory.

Steenburgh, W. J., 2004: *Mountains of snow: Orographic storms of the western United States*. American Avalanche Association Fall Weather Seminar, Snowbird, UT.

Steenburgh, W. J., 2003: *Dynamics and microphysics of orographic storms*, MSC/COMET Winter Weather Course.

Steenburgh, W. J., 2002: Numerical *weather prediction: The ultimate test of supercomputing*. University of Utah High School Computing Institute.

Steenburgh, W. J., 2002: *Weather support for the 2002 Olympic and Paralympic Winter Games*, Marine Sciences Research Center, State University of New York, Stony Brook.

Steenburgh, W. J., 2002: *ADAS, MesoWest, and IFPS challenges, tools, and strategies*, NWS-WR SOO/DOH Workshop.

Steenburgh, W. J., 2002: *Cool-season orographic precipitation processes and prediction*, MSC/COMET Winter Weather Course.

Steenburgh, W. J., 2001: *Weather research and forecasting advances for the 2002 Olympic Winter Games*, University of Innsbruck, Austria.

Steenburgh, W. J., 2000: *Educational applications of mesoscale modeling*, UCAR/UNIDATA Summer Workshop.

Steenburgh, W. J., 1999: *Orographic cyclogenesis*, UCAR/COMET Mesoscale Analysis and Prediction Course.

Steenburgh, W. J., 1997: *Mesoscale modeling over western North America: Model-aided studies and real-time applications*, UCAR/COMET Mesoscale Analysis and Prediction Course.

Professional Service

1996 – present	Fellow, NOAA Cooperative Institute for Regional Prediction
2006 – present	3TIER Environmental Forecast Group Science Advisory Board
1994 – present	Member, American Meteorolgical Society
2003 – 2006	Chair, UCAR/Unidata User Committee
2003 – 2006	User Committee Representative, UCAR/Unidata Policy Committee
1998 – 2006	UCAR/Unidata User Committee
2001 – 2006	Associate Editor, *Weather and Forecasting*
2005	Utah Sci. Center Avalanche, Weather, Mountains and Risk Discussion Panel
2004	Chair, Workshop on Weather Prediction in the Intermountain West
2000 – 2003	AMS Mountain Meteorology Committee

1996 – 2002	Head, Mesoscale Modeling Team for the 2002 Olympic Winter Games
2002	Co-chair (with Louisa Nance), AMS Mountain Meteorology Conference
1999 – 2001	PM10 SIP Modeling Workgroup, State of Utah Dept. of Environmental Quality
2000	Chair, Workshop on Weather Prediction in the Intermountain West
1999	Chair, Workshop on Weather Prediction in the Intermountain West
1998	Chair, Workshop on Weather Prediction in the Intermountain West
1997	Chair, Workshop on Weather Prediction in the Intermountain West
1994 – 1996	Manager, Workstation MM5 Users' Group
1994 – 1996	Advisory Committee for the PSU/NCAR Mesoscale Model
1994 – 1996	Puget Sound Regional Modeling Committee

University Service

2005 – present	Chair, Department of Meteorology
2005 – present	College of Mines and Earth Sciences College Council
2005 – present	College of Mines and Earth Sciences Executive and Space Committee
2004 – 2006	College of Mines and Earth Sciences Distinguished Lecture Series Committee
1996 – 2005	Department of Meteorology Undergraduate Advisor
2003 – 2004	Chair, College of Mines and Earth Sciences Faculty Relations Committee
2001 – 2004	Center for High Performance Computing Faculty Advisory Board
1998 – 2004	Department of Meteorology Curriculum Committee
2001 – 2002	Chiar, College of Mines and Earth Sciences Teaching Committee
1996 – 2002	College of Mines and Earth Sciences Teaching Committee
1999 – 2001	Chair, College of Mines and Earth Sciences Computer Committee
1997 – 2001	College of Mines and Earth Sciences Computer Committee
2000	College of Science Day Lecturer
1999	College of Science Day Lecturer
1996 – 1998	Leader, Department of Meteorology Semester Conversion
1997 – 1998	Academic Computing and Library Information Systems Advisory Committee
1998	Center for High Performance Computing Visualization Task Force
1998	College of Science Day Lecturer
1997	College of Science Day Lecturer
1996	College of Science Day Lecturer
1996	Featured Instructor, Commercials promoting use of technology in the classroom

Awards

Outstanding Service Award (2002), National Weather Service Western Region, "for outstanding service to the weather support group for the 2002 Olympic Winter Games"

Outstanding Teaching Award (2001), College of Mines and Earth Sciences, University of Utah

Graduate Fellowship (1994), American Meteorological Society, to attend International Symposium on the Life Cycles of Extratropical Cyclones, Bergen, Norway

Elizabeth Holmes Teas' Undergraduate Scholarship for Academic Excellence (1987-1989)